Appendix to the working program

Federal State Budgetary Educational Institution of Higher Education
"Privolzhsky Research Medical University"
Ministry of Health of the Russian Federation

BANK OF ASSESSMENT TOOLS FOR DISCIPLINE

PATHOLOGICAL PHYSIOLOGY, PATHOPHYSIOLOGY OF HEAD AND NECK

Training program (specialty): **31.05.03 DENTISTRY**
code, name
Department: **PATHOLOGICAL PHYSIOLOGY**

Mode of study: **FULL-TIME**

Nizhniy Novgorod
2021

1. Bank of assessment tools for the current monitoring of academic performance, mid-term assessment of students in the discipline / practice

This Bank of Assessment Tools (BAT) for the discipline "**Pathological physiology, pathophysiology of head and neck** " is an integral appendix to the working program of the discipline "**Pathological physiology, pathophysiology of head and neck**". All the details of the approval submitted in the WPD for this discipline apply to this BAT.

(Banks of assessment tools allow us to evaluate the achievement of the planned results stated in the educational program.

Assessment tools are a bank of control tasks, as well as a description of forms and procedures designed to determine the quality of mastering study material by students.)

2. List of assessment tools

The following assessment tools are used to determine the quality of mastering the academic material by students in the discipline/ practice:

No.	Assessment tool	Brief description of the assessment tool	Presentation of the assessment tool in the BAT
1	Tests	A system of standardized tasks that allows you to automate the procedure of measuring the level of knowledge and skills of a student	Bank of test tasks

3. A list of competencies indicating the stages of their formation in the process of mastering the educational program and the types of evaluation tools

Code and formulation of competence*	Stage of competence formation	Controlled sections of the discipline	Assessment tools
UC-1. Able to carry out critical analysis of problem situations based on a systematic approach, develop an action strategy	Current	Subject and tasks of pathophysiology. Basic concepts of nosology. Pathogenic effects of external environmental factors. Modeling of major dental diseases. Acute non-specific cell injury. Features of the reaction of pulp cells, mucous membranes and of bone tissue for acute and chronic damage. Disorders of peripheral blood circulation and microcirculation. Microcirculation disorders in the development of pathological processes in maxillofacial region. Disorders of barrier functions of the body. Blood-salivary barrier. Acute inflammation. Etiology and pathogenesis of maxillofacial inflammatory processes. Sialoses and sialoadenitis: their pathogenesis, principles of modeling and diagnostics of salivary gland s diseases. Wound healing. Pathology of the wound healing in the tissues of the dento-maxillofacial region. Fever. Overheating. Overcooling. Pathophysiology of water-salt	Tests

		metabolism. Edema. Pathophysiology of phosphorus-calcium metabolism, osteoporosis, osteomalacia. Pathophysiology of the acid-base balance (ABB). The role of ABB in the development of caries and inflammatory diseases, periodontal diseases and pathology of the oral mucosa. Pathophysiology of protein, lipids and carbohydrates' metabolism. The role of metabolic disorders in the development of pathology of the dento-maxillofacial region. Tumor growth. The most important etiological factors in the development of head and neck tumors. Hypoxia. The role of hypoxia in the development of dental diseases. Pathophysiology of red blood cells. Mechanisms of disorders in the oral cavity tissues in different types of anemia. Pathophysiology of white blood cells. Changes in the oral in disorders of the white blood cells. Hemoblastosis: their pathogenesis and dental manifestations. Pathophysiology of hemostasis. Significance of hemostatic disorders in the development of dental diseases. Pathophysiology of external respiration. The role of respiratory disorders in the formation of the dental-maxillary system. Changes in external respiration with deformities of the jaws and diseases of the dento-maxillofacial region. Pathophysiology of the cardiovascular system. Heart failure. Coronary insufficiency. Cardiac arrhythmias. Disorders of vascular tone. Arterial hyper-and hypotension. Peculiarities of major dental diseases in patients with arterial hypertension. Pathophysiology of the gastrointestinal system. Peptic ulcer disease. Relationship of gastrointestinal pathology with the state of the oral cavity. Pathophysiology of the liver. The role of liver pathology in the development of dental diseases. Pathophysiology of the kidneys. The role of kidney pathology in the development of diseases of dento-maxillofacial region. Pathophysiology of the nervous system. Pain. Pathophysiologyof the endocrine system. Manifestations of endocrine pathology in stomatology.	
GPC-1. Able to implement moral and legal norms, ethical and deontological principles in professional activities	Current	Subject and tasks of pathophysiology. Basic concepts of nosology. Pathogenic effects of external environmental factors. Modeling of major dental diseases. Acute non-specific cell injury. Features of the reaction of pulp cells, mucous membranes and of bone tissue for acute and chronic damage.	Tests

		Disorders of peripheral blood circulation and microcirculation. Microcirculation disorders in the development of pathological processes in maxillofacial region. Disorders of barrier functions of the body. Blood-salivary barrier. Acute inflammation. Etiology and pathogenesis of maxillofacial inflammatory processes. Sialoses and sialoadenitis: their pathogenesis, principles of modeling and diagnostics of salivary gland s diseases. Wound healing. Pathology of the wound healing in the tissues of the dento-maxillofacial region. Fever. Overheating. Overcooling. Pathophysiology of water-salt metabolism. Edema. Pathophysiology of phosphorus-calcium metabolism, osteoporosis, osteomalacia. Pathophysiology of the acid-base balance (ABB). The role of ABB in the development of caries and inflammatory diseases, periodontal diseases and pathology of the oral mucosa. Pathophysiology of protein, lipids and carbohydrates' metabolism. The role of metabolic disorders in the development of pathology of the dento-maxillofacial region. Tumor growth. The most important etiological factors in the development of head and neck tumors. Hypoxia. The role of hypoxia in the development of dental diseases. Pathophysiology of red blood cells. Mechanisms of disorders in the oral cavity tissues in different types of anemia. Pathophysiology of white blood cells. Changes in the oral in disorders of the white blood cells. Hemoblastosis: their pathogenesis and dental manifestations. Pathophysiology of hemostasis. Significance of hemostatic disorders in the development of dental diseases. Pathophysiology of external respiration. The role of respiratory disorders in the formation of the dental-maxillary system. Changes in external respiration with deformities of the jaws and diseases of the dento-maxillofacial region. Pathophysiology of the cardiovascular system. Heart failure. Coronary insufficiency. Cardiac arrhythmias. Disorders of vascular tone. Arterial hyper-and hypotension. Peculiarities of major dental diseases in patients with arterial hypertension. Pathophysiology of the gastrointestinal system. Peptic ulcer disease. Relationship of gastrointestinal pathology with the state of the oral cavity. Pathophysiology of the liver. The role of liver pathology in the development of dental diseases. Pathophysiology of the kidneys. The role of kidney pathology in the development of diseases of dento-	

		maxillofacial region. Pathophysiology of the nervous system. Pain. Pathophysiologyof the endocrine system. Manifestations of endocrine pathology in stomatology.	
GPC-8 Able to use basic physical and chemical, mathematical and natural science concepts and methods in solving professional problems	Current	Subject and tasks of pathophysiology. Basic concepts of nosology. Pathogenic effects of external environmental factors. Modeling of major dental diseases. Acute non-specific cell injury. Features of the reaction of pulp cells, mucous membranes and of bone tissue for acute and chronic damage. Disorders of peripheral blood circulation and microcirculation. Microcirculation disorders in the development of pathological processes in maxillofacial region. Disorders of barrier functions of the body. Blood-salivary barrier. Acute inflammation. Etiology and pathogenesis of maxillofacial inflammatory processes. Sialoses and sialoadenitis: their pathogenesis, principles of modeling and diagnostics of salivary gland s diseases. Wound healing. Pathology of the wound healing in the tissues of the dento-maxillofacial region. Fever. Overheating. Overcooling. Pathophysiology of water-salt metabolism. Edema. Pathophysiology of phosphorus-calcium metabolism, osteoporosis, osteomalacia. Pathophysiology of the acid-base balance (ABB). The role of ABB in the development of caries and inflammatory diseases, periodontal diseases and pathology of the oral mucosa. Pathophysiology of protein, lipids and carbohydrates' metabolism. The role of metabolic disorders in the development of pathology of the dento-maxillofacial region. Tumor growth. The most important etiological factors in the development of head and neck tumors. Hypoxia. The role of hypoxia in the development of dental diseases. Pathophysiology of red blood cells. Mechanisms of disorders in the oral cavity tissues in different types of anemia. Pathophysiology of white blood cells. Changes in the oral in disorders of the white blood cells. Hemoblastosis: their pathogenesis and dental manifestations. Pathophysiology of hemostasis. Significance of hemostatic disorders in the development of dental diseases. Pathophysiology of external respiration. The role of respiratory disorders in the formation of the dental-maxillary system. Changes in external respiration with deformities of the jaws	Tests

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GPC-9 Able to assess morphofunctional states and pathological processes in the human body to solve professional problems	Current	Subject and tasks of pathophysiology. Basic concepts of nosology. Pathogenic effects of external environmental factors. Modeling of major dental diseases. Acute non-specific cell injury. Features of the reaction of pulp cells, mucous membranes and of bone tissue for acute and chronic damage. Disorders of peripheral blood circulation and microcirculation. Microcirculation disorders in the development of pathological processes in maxillofacial region. Disorders of barrier functions of the body. Blood-salivary barrier. Acute inflammation. Etiology and pathogenesis of maxillofacial inflammatory processes. Sialoses and sialoadenitis: their pathogenesis, principles of modeling and diagnostics of salivary gland s diseases. Wound healing. Pathology of the wound healing in the tissues of the dento-maxillofacial region. Fever. Overheating. Overcooling. Pathophysiology of water-salt metabolism. Edema. Pathophysiology of phosphorus-calcium metabolism, osteoporosis, osteomalacia. Pathophysiology of the acid-base balance (ABB). The role of ABB in the development of caries and inflammatory diseases, periodontal diseases and pathology of the oral mucosa. Pathophysiology of protein, lipids and carbohydrates' metabolism. The role of metabolic disorders in the development of pathology of the dento-maxillofacial region. Tumor growth. The most important etiological factors in the development of head and neck tumors. Hypoxia. The role of hypoxia in the	Tests

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PC- 1 Able and ready to implement a set of measures aimed at preserving and strengthening health and including the formation of a healthy lifestyle of the patient (their relatives/ legal representatives). Prevention of the occurrence and / or spread of dental diseases, their early diagnosis, identification of the causes and conditions of occurrence and development, as	Current	Subject and tasks of pathophysiology. Basic concepts of nosology. Pathogenic effects of external environmental factors. Modeling of major dental diseases. Acute non-specific cell injury. Features of the reaction of pulp cells, mucous membranes and of bone tissue for acute and chronic damage. Disorders of peripheral blood circulation and microcirculation. Microcirculation disorders in the development of pathological processes in maxillofacial region. Disorders of barrier functions of the body. Blood-salivary barrier. Acute inflammation. Etiology and pathogenesis of maxillofacial inflammatory processes. Sialoses and sialoadenitis: their pathogenesis, principles of modeling and diagnostics of salivary gland s diseases. Wound healing. Pathology of the wound healing in the tissues of the dento-maxillofacial region. Fever. Overheating. Overcooling. Pathophysiology of water-salt	Tests

well as prevention.		metabolism. Edema. Pathophysiology of phosphorus-calcium metabolism, osteoporosis, osteomalacia. Pathophysiology of the acid-base balance (ABB). The role of ABB in the development of caries and inflammatory diseases, periodontal diseases and pathology of the oral mucosa. Pathophysiology of protein, lipids and carbohydrates' metabolism. The role of metabolic disorders in the development of pathology of the dento-maxillofacial region. Tumor growth. The most important etiological factors in the development of head and neck tumors. Hypoxia. The role of hypoxia in the development of dental diseases. Pathophysiology of red blood cells. Mechanisms of disorders in the oral cavity tissues in different types of anemia. Pathophysiology of white blood cells. Changes in the oral in disorders of the white blood cells. Hemoblastosis: their pathogenesis and dental manifestations. Pathophysiology of hemostasis. Significance of hemostatic disorders in the development of dental diseases. Pathophysiology of external respiration. The role of respiratory disorders in the formation of the dental-maxillary system. Changes in external respiration with deformities of the jaws and diseases of the dento-maxillofacial region. Pathophysiology of the cardiovascular system. Heart failure. Coronary insufficiency. Cardiac arrhythmias. Disorders of vascular tone. Arterial hyper-and hypotension. Peculiarities of major dental diseases in patients with arterial hypertension. Pathophysiology of the gastrointestinal system. Peptic ulcer disease. Relationship of gastrointestinal pathology with the state of the oral cavity. Pathophysiology of the liver. The role of liver pathology in the development of dental diseases. Pathophysiology of the kidneys. The role of kidney pathology in the development of diseases of dento-maxillofacial region. Pathophysiology of the nervous system. Pain. Pathophysiologyof the endocrine system. Manifestations of endocrine pathology in stomatology.	
PC-6 Ready to collect and analyze complaints and other information from the patient (relatives/ legal representatives), his / her medical history,	Current	Subject and tasks of pathophysiology. Basic concepts of nosology. Pathogenic effects of external environmental factors. Modeling of major dental diseases. Acute non-specific cell injury. Features of the reaction of pulp cells, mucous membranes and of bone tissue for acute and chronic damage.	Tests

interpretation of the results of examination, laboratory, instrumental, and other studies in order to recognize the condition or establish the fact of the presence or absence of dental diseases, symptoms, syndromes of dental diseases		Disorders of peripheral blood circulation and microcirculation. Microcirculation disorders in the development of pathological processes in maxillofacial region. Disorders of barrier functions of the body. Blood-salivary barrier. Acute inflammation. Etiology and pathogenesis of maxillofacial inflammatory processes. Sialoses and sialoadenitis: their pathogenesis, principles of modeling and diagnostics of salivary gland s diseases. Wound healing. Pathology of the wound healing in the tissues of the dento-maxillofacial region. Fever. Overheating. Overcooling. Pathophysiology of water-salt metabolism. Edema. Pathophysiology of phosphorus-calcium metabolism, osteoporosis, osteomalacia. Pathophysiology of the acid-base balance (ABB). The role of ABB in the development of caries and inflammatory diseases, periodontal diseases and pathology of the oral mucosa. Pathophysiology of protein, lipids and carbohydrates' metabolism. The role of metabolic disorders in the development of pathology of the dento-maxillofacial region. Tumor growth. The most important etiological factors in the development of head and neck tumors. Hypoxia. The role of hypoxia in the development of dental diseases. Pathophysiology of red blood cells. Mechanisms of disorders in the oral cavity tissues in different types of anemia. Pathophysiology of white blood cells. Changes in the oral in disorders of the white blood cells. Hemoblastosis: their pathogenesis and dental manifestations. Pathophysiology of hemostasis. Significance of hemostatic disorders in the development of dental diseases. Pathophysiology of external respiration. The role of respiratory disorders in the formation of the dental-maxillary system. Changes in external respiration with deformities of the jaws and diseases of the dento-maxillofacial region. Pathophysiology of the cardiovascular system. Heart failure. Coronary insufficiency. Cardiac arrhythmias. Disorders of vascular tone. Arterial hyper-and hypotension. Peculiarities of major dental diseases in patients with arterial hypertension. Pathophysiology of the gastrointestinal system. Peptic ulcer disease. Relationship of gastrointestinal pathology with the state of the oral cavity. Pathophysiology of the liver. The role of liver pathology in the development of dental diseases. Pathophysiology of the kidneys. The role of kidney pathology in the development of diseases of dento-	

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PC-12 Able to participate in scientific research, analysis and public presentation of medical information based on evidence-based medicine and to participate in the introduction of new methods and techniques aimed at protecting public health and reducing dental morbidity.	Current	Subject and tasks of pathophysiology. Basic concepts of nosology. Pathogenic effects of external environmental factors. Modeling of major dental diseases. Acute non-specific cell injury. Features of the reaction of pulp cells, mucous membranes and of bone tissue for acute and chronic damage. Disorders of peripheral blood circulation and microcirculation. Microcirculation disorders in the development of pathological processes in maxillofacial region. Disorders of barrier functions of the body. Blood-salivary barrier. Acute inflammation. Etiology and pathogenesis of maxillofacial inflammatory processes. Sialoses and sialoadenitis: their pathogenesis, principles of modeling and diagnostics of salivary gland s diseases. Wound healing. Pathology of the wound healing in the tissues of the dento-maxillofacial region. Fever. Overheating. Overcooling. Pathophysiology of water-salt metabolism. Edema. Pathophysiology of phosphorus-calcium metabolism, osteoporosis, osteomalacia. Pathophysiology of the acid-base balance (ABB). The role of ABB in the development of caries and inflammatory diseases, periodontal diseases and pathology of the oral mucosa. Pathophysiology of protein, lipids and carbohydrates' metabolism. The role of metabolic disorders in the development of pathology of the dento-maxillofacial region. Tumor growth. The most important etiological factors in the development of head and neck tumors. Hypoxia. The role of hypoxia in the development of dental diseases. Pathophysiology of red blood cells. Mechanisms of disorders in the oral cavity tissues in different types of anemia. Pathophysiology of white blood cells. Changes in the oral in disorders of the white blood cells. Hemoblastosis: their pathogenesis and dental manifestations. Pathophysiology of hemostasis. Significance of hemostatic disorders in the development of dental diseases. Pathophysiology of external respiration. The role of respiratory disorders in the formation of the dental-maxillary system. Changes in external respiration with deformities of the jaws	Tests

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4. The content of the assessment tools of entry, current control

Current control is carried out by the discipline teacher when conducting classes in the form of: assessment tool 1, assessment tool 2.

Assessment tools for current control.

Assessment tool 1

№	Test	Answers	Developing competence code (according to the WPD)
1.	The main etiological factor of acute altitude sickness is: A) Decrease in atmospheric pressure B) Decrease in partial pressure of O_2 in the air C) Ultraviolet radiation D) Low temperature E) High temperature	B	UC 1 GPC 1,8,9 PC 1,6,12
2.	The conditions those promote overheating of the organism: A) High humidity and environment temperature B) Increase in perspiration C) Decrease in perspiration D) Uncoupling oxidation and phosphorylation E) Dilatation of peripheral blood vessels	A, C, D	UC 1 GPC 1,8,9 PC 1,6,12
3.	What cells, organs and tissues are the most radiosensitive: A) Brain B) Bone marrow C) Erythrocytes D) Gastro-intestinal epithelium E) Gonads	B, D, E	UC 1 GPC 1,8,9 PC 1,6,12
4.	Factor promoting radiation-damage of cells are: A) Vitamin E deficiency B) High mitotic activity C) Low mitotic activity	A, B	UC 1 GPC 1,8,9 PC 1,6,12
5.	Mark the signs of arterial hyperemia: A) Cyanosis of the organ B) Reddening of the organ or tissue C) Marked edema of the organ D) Increased tissue turgor E) Increased temperature in the organs localized superficially	B, D, E	UC 1 GPC 1,8,9 PC 1,6,12
6.	Choose the basic types of arterial hyperemia according to its origin: A) Neurotonic	A, C, D	UC 1 GPC 1,8,9

	B) Obstructive C) Neuroparalytic D) Myoparalytic E) Compressive		PC 1,6,12
7.	Mark the signs of venous hyperemia: A) Increased tissue turgor B) Edema of an organ C) Cyanosis of an organ or tissue D) Redness of an organ or tissue E) Decrease in temperature in internal organ	A, B, C	UC 1 GPC 1,8,9 PC 1,6,12
8.	Mark the symptoms of ischemia: A) Cyanosis of an organ B) Paleness of an organ or tissue C) Pain D) Decrease in tissue turgor E) Reddening of the organ or tissue	B, C, D	UC 1 GPC 1,8,9 PC 1,6,12
9.	Which bioactive substances are responsible for ischemia? A) Histamine B) Catecholamines C) Bradykinin D) Thromboxane A_2 E) Acetylcholine	B, D	UC 1 GPC 1,8,9 PC 1,6,12
10.	Causes of aseptic inflammation may be the following: A) Hemorrhage into tissues B) The surgical operation that was done in aseptic conditions C) Parenteral injection of sterile foreign protein D) Enteral administration of non-sterile foreign protein E) Transient hyperoxia of tissues	A, B, C	UC 1 GPC 1,8,9 PC 1,6,12
11.	Inflammation is regarded as an adaptive reaction of the organism because it: A) Inactivates phlogogenic agent B) Prevents allergization of the organism C) Mobilizes defensive factors of the organism D) Promotes the restoration or replacement of injured tissues E) Restricts the site of injury (especially in venous hyperemia)	A, C, D, E	UC 1 GPC 1,8,9 PC 1,6,12
12.	The sings that can show the presence of inflammatory process in the organism are: A) Leukocytosis B) Erythrocytosis C) Fever D) Increase in ESR E) Thrombosis	A, C, D	UC 1 GPC 1,8,9 PC 1,6,12
13.	In an acute inflammation site there are such chemical and physical changes as: A) Acidosis B) Hyperosmia C) Hyperoncia D) Hyposmia E) Hyponcia	A, B, C	UC 1 GPC 1,8,9 PC 1,6,12
14.	Mediators of inflammation that cause an increase in vascular permeability in inflammation are: A) Heparin B) Histamine C) Bradykinine D) Interferon E) Leukotrienes	B, C, E	UC 1 GPC 1,8,9 PC 1,6,12
15.	What is common to the first type of an allergic response? A) Leading role of IgE in pathogenesis B) A response reveals itself in 15-20 minutes after the repeated contact with the allergen C) A response reveals itself in 24-48 hours after the repeated contact with the allergen D) Histamine, bradykinine, leukotryens play the main role in the mechanism of allergic reaction E) In the mechanism of allergy the main role belongs to lymphokines	A, B, D	UC 1 GPC 1,8,9 PC 1,6,12
16.	What things are common to allergic reactions of the 4^{th} type: A) Sensitized T lymphocytes play a leading role in the pathogenesis B) Start in 6-8 hours C) Start in 20-30 minutes	A, B, D	UC 1 GPC 1,8,9 PC 1,6,12

	D) The mechanism of development depends on lymphokines E) The mechanism of development depends on histamine and bradykinin		
17.	Autoimmune diseases that develop according to 2^{d} type of allergy are: A) Myasthenia gravis B) Serum disease C) Immune agranulocytosis D) Acute glomerulonephritis E) Autoimmune hemolytic anemia	A, C, E	UC 1 GPC 1,8,9 PC 1,6,12
18.	Autoimmune diseases that develop according to the 3rd type of allergy are: A) Myasthenia gravis B) Serum disease C) Immune agranulocytosis D) Acute glomerulonephritis E) Autoimmune hemolytic anemia	B, D	UC 1 GPC 1,8,9 PC 1,6,12
19.	What changes in the organism are typical of acute-phase reaction? A) Activation of immune system B) Increase of ACTH production in hypophysis C) Increase of albumin production in liver D) Activation of phagocytosis E) Increase in protein synthesis in muscles	A, B, D	UC 1 GPC 1,8,9 PC 1,6,12
20.	Noninfectious fever arises in the following pathological processes: A) Necrosis of tissues B) Hyperproduction of thyroid hormones C) Malignant tumor D) Intravascular hemolysis of erythrocytes E) Exogenic overheating	A, C, D	UC 1 GPC 1,8,9 PC 1,6,12
21.	What symptoms are typical of acute-phase reaction? A) Fever B) Neutropenia C) Positive nitrogen balance D) Increase in cortisol production by adrenal glands E) Negative nitrogen balance	A, D, E	UC 1 GPC 1,8,9 PC 1,6,12
22.	Name mechanisms that take part in raising the temperature of the body in fever: A) Peripheral vasoconstriction B) Increase in contractile thermogenesis C) Decrease in perspiration D) Activation of biological oxidation E) Increase in perspiration	A, B, C, D	UC 1 GPC 1,8,9 PC 1,6,12
23.	Mark the manifestations of malignant tumors growth: A) Metastasis B) Recurrence C) Invasive growth D) Expansive growth E) Weakening of contact inhibition of cells	A, B,C, E	UC 1 GPC 1,8,9 PC 1,6,12
24.	Which factors are responsible for the destruction of tumor cells in the organism? A) Macrophage phagocytosis B) T-lymphocyte suppressors C) T-lymphocyte killers D) NK “Natural killers” E) Fibrinous pellicle covering tumor cells	A, C, D	UC 1 GPC 1,8,9 PC 1,6,12
25.	What characterizes malignant growth? A) Weakening of contact inhibition of cells in tissue culture B) Availability of solid surface for grow of the cells in tissue culture C) Intensification of anaerobic glycolysis D) Production of the factor which intensifies angiogenesis E) Weakening of cellular differentiation	A, C, D, E	UC 1 GPC 1,8,9 PC 1,6,12
26.	Compensatory mechanisms of metabolic acidosis are: A) Binding of hydrogen ions by proteins and bicarbonate buffer B) Hyperventilation C) Intensified urine excretion of ammonia salt D) Intensified urine excretion of bicarbonate by kidneys E) Entrance of hydrogen-ions into erythrocytes in exchange of potassium-ions and into bones in exchange of sodium-ions and calcium-ions	A, B, C, E	UC 1 GPC 1,8,9 PC 1,6,12
27.	Which processes take place in compensation of respiratory acidosis? A) Activation of acidogenesis and ammoniogenesis in kidney	A, B, D	UC 1

	B) Increase in HCO_3 reabsorbtion in kidney canaliculi C) Decrease in HCO_3 reabsorbtion in kidney canaliculi D) Binding of surplus of protons by reduced hemoglobin E) Hypokalemia		GPC 1,8,9 PC 1,6,12
28.	Which factors are the causes of respiratory acidosis? A)Hypoventilation of lungs B)Accumulation of exudates in pleural cavity C) Hyperventilation of lungs D) Decreased excitability of respiratory center E) Inhalation of gaseous mixture with high content of CO_2	A, B, D, E	UC 1 GPC 1,8,9 PC 1,6,12
29.	Which hormones excess can give rise of hyperglycemia? A) Adrenalin B) Glucocorticoids C) Insulin D) Glucagon E) ADH	A, B, D	UC 1 GPC 1,8,9 PC 1,6,12
30.	What is the main link in pathogenesis of diabetic coma in patients with diabetes mellitus 1 type? A) Hyperglycemia B) Hyperketonemia C) Hyperpotassiumemia D) Hypersodiumemia E) Alkalosis	B	UC 1 GPC 1,8,9 PC 1,6,12
31.	What is the cause of polyuria in an early stage of diabetes mellitus? A) Microangiopathy of kidneys B) Hyperglycemia C) Ketonemia D) Hypercholesterolemia E) Hyperpotassemia	B	UC 1 GPC 1,8,9 PC 1,6,12
32.	What are the complications of long-term diabetes mellitus? A) Fast development of atherosclerosis B) Microangiopathy C) Macroangiopathy D) Polyuria E) Nephropathy F) Neuropathy	A, B, C, E, F	UC 1 GPC 1,8,9 PC 1,6,12
33.	Choose the possible causes of right ventricle failure: A) Arterial hypertension of the systemic circulation B) Arterial hypertension of the pulmonary circulation C) Defect of interventricular septum D) Emphysema of lungs E) Coarctation of aorta	B, C, D	UC 1 GPC 1,8,9 PC 1,6,12
34.	Choose the possible causes of the left ventricle failure: A) Aortic stenosis B) Infarction of the left ventricle C) Arterial hypertension of the pulmonary circulation D) Hypertonic disease E) Emphysema of lungs	A, B, D	UC 1 GPC 1,8,9 PC 1,6,12
35.	Heart failure due to the overload by an increased blood volume develops in the following cases: A) Inherited defects of heart septum B) Hypertension of systemic circulation C) Insufficiency of heart valves D) Aortic stenosis E) Aortic regurgitation	A, C, E	UC 1 GPC 1,8,9 PC
36.	An overload of the left ventricle by an increased blood pressure develops in the following cases: A) Coarctation of aorta B) Essential hypertension C) Mitral insufficiency D) Symptomatic hypertension E) Aortic regurgitation	A, B, D	UC 1 GPC 1,8,9 PC 1,6,12
37.	Endogenous hypertensive agents promoting elevation of arterial pressure by rising peripheral vascular resistance are: A) Bradykinin	B, C, D	UC 1 GPC 1,8,9

	B) Catecholamines C) Angiotensin II D) Vasopressin E) Nitric oxide		PC 1,6,12
38.	Endogenous antihypertensive agents promoting arterial pressure fall by decreasing of peripheral vascular resistance are: A) Catecholamines B) Bradykinin C) Prostaglandin E D) NO (nitric oxide) E) Angiotensin	B, C, D	UC 1 GPC 1,8,9 PC 1,6,12
39.	Factors that are responsible for pathogenesis of edemas in decompensated heart failure are: A) An increase in hydrostatic pressure in the venous part of capillaries B) An increase in aldosterone and vasopressin content in the blood C) A decrease in aldosterone and vasopressin content in the blood D) Dynamic lymphatic failure E) A decrease in oncotic pressure of blood	A, B, D, E	UC 1 GPC 1,8,9 PC 1,6,12
40.	Compensatory mechanisms in acute hypoxia are: A) Blood redistribution B) Increase in lung ventilation C) Tachycardia D) Decrease in cardiac output E) Release of erythrocytes from blood storages	A, B, C, E	UC 1 GPC 1,8,9 PC 1,6,12
41.	Inspiratory dyspnea can be revealed in the following pathological conditions: A) Pulmonary emphysema B) Larynx edema C) Bronchial asthma attacks D) Stenosis of trachea E) I asphyxia stage	B, D, E	UC 1 GPC 1,8,9 PC 1,6,12
42.	Expiratory dyspnea can be revealed in the following pathological conditions: A) Pulmonary emphysema B) Larynx edema C) Bronchial asthma attacks D) Stenosis of trachea E) I asphyxia stage	A, C	UC 1 GPC 1,8,9 PC 1,6,12
43.	Respiratory insufficiency may be characterized by the following changes in gas composition and acid-base balance of arterial blood: A) Hypoxemia B) Hyperoxemia C) Respiratory acidosis D) Hypercapnia E) Hypocapnia	A, C, D	UC 1 GPC 1,8,9 PC 1,6,12
44.	Respiratory insufficiency is characterized by: A) Dyspnea B) Anemia C) Tachycardia D) Cyanosis E) Hypoxia	A, C, D, E	UC 1 GPC 1,8,9 PC 1,6 UC 1 GPC 1,8,9 PC 1,6,12,12
45.	Hyperacidity and hypersecretion of gastric glands are characterized by the following symptoms: A) Predisposition to constipation B) Elevation of pepsin activity C) Spasm of pylorus D) Low pepsin activity	A, B, C	UC 1 GPC 1,8,9 PC 1,6,12
46.	The following factors can contribute to the development of gastric and duodenal ulcers: A) Infection B) Overproduction of glycocorticoids C) Increased mucus excretion D) Duodeno-gastric reflux E) Increased evacuation of food from the stomach	A, B, D	UC 1 GPC 1,8,9 PC 1,6,12
47.	Name the absence of enzymes and hydrochloric acid in gastric juice: A) Achlorhydria	C	UC 1 GPC 1,8,9

	B) Acholia C) Achilia D) Hypochilia E) Hypocholia		PC 1,6,12
48.	Mark the factors which play an important role in ascites pathogenesis in portal hypertension: A) Elevation of hydrostatic pressure in a portal vein system B) Lowering of lymph-formation C) Elevation of lymph-formation D) Lowering of oncotic pressure of blood E) Activation of RAAS	A, C, D, E	UC 1 GPC 1,8,9 PC 1,6,12
49.	Mark the manifestations of malabsorption syndrome: A) Diarrhea B) Constipation C) Weight loss D) Hypoproteinemia E) Hyperproteinemia	A, C, D	UC 1 GPC 1,8,9 PC 1,6,12
50.	Which pigment stains urine in dark color in posthepatic jaundice? A) Conjugated bilirubin B) Unconjugated bilirubin C) Urobilin D) Stercobilin E) Hemoglobin	A	UC 1 GPC 1,8,9 PC 1,6,12
51.	Which pigments stain urine in a dark color in prehepatic jaundice? A) Conjugated bilirubin B) Unconjugated bilirubin C) Urobilin D) Stercobilin E) Hemoglobin	C, D	UC 1 GPC 1,8,9 PC 1,6,12
52.	The symptoms characteristics of cholemia are: A) Bradycardia B) Skin itch C) Tachycardia D) Decrease in arterial pressure E) Rising of arterial pressure.	A, B, D	UC 1 GPC 1,8,9 PC 1,6,12
53.	Which vitamins absorption will became worse in acholia? A) Vitamin A B) Vitamin B1 C) Vitamin D D) Vitamin E E) Vitamin K	A, C, D, E	UC 1 GPC 1,8,9 PC 1,6,12
54.	Which of the following indexes characterize a tubular function disorder of kidneys? A) Aminoaciduria B) Hematuria C) Isosthenuria D) An unselective proteinuria E) A lowering of creatinin clearance	A, C, D	UC 1 GPC 1,8,9 PC 1,6,12
55.	Mark the main mechanisms of the glomerular filtration rate lowering: A) Decrease in systemic arterial pressure B) Primary urine outflow damage C) Falling of oncotic pressure of blood D) Elevation of oncotic pressure of blood E) Lowering of a functional nephrons number	A, B, D, E	UC 1 GPC 1,8,9 PC 1,6,12
56.	Polyuria can be caused by the lack of: A) Vasopressin B) Adrenaline C) Aldosterone D) Oxytocin E) Insulin	A, C, E	UC 1 GPC 1,8,9 PC 1,6,12
57.	Parameters describing reduction in glomerular filtration rate are: A) Leukocyturia B) Azotemia C) Oliguria D) Aminoaciduria E) Ketonuria	B, C	UC 1 GPC 1,8,9 PC 1,6,12

58.	Choose the diseases that are typical of the development of secondary diabetes mellitus: A) Acromegaly B) Insulinoma C) Cushing's syndrome D) Myxedema E) Addison's disease	A, C	UC 1 GPC 1,8,9 PC 1,6,12
59.	Which hormones insufficiency may develop in the organism after a sudden cessation of the prolonged corticosteroid therapy? A) Cortisol B) Adrenalin C) ACTH D) ADH E) Insulin	A, C	UC 1 GPC 1,8,9 PC 1,6,12

Assessment tool 2

№	Test	Answers	Developing competence code (according to the WPD)
1.	Match the following pathologic states and their consequences of 1) Acholia and 2) Pancreatic achilia A) Bile absence in the duodenum B) Lipase absence C) Low lipase activity D) Emulgence of the lipids disorder E) Lipids splitting disorder	1 A, C, D 2 B, E	UC 1 GPC 1,8,9 PC 1,6,12
2.	Match the diseases and the disturbances of the hormone production: 1) STH 2) ACTH 3)TSH 4) GTH 5) ADH A) Diabetes insipidus B) Cushing's disease C) Hyperthyroidism D) Premature sexual maturation E) Pituitary dwarfism	1 – E 2 – B 3 – C 4 – D 5 - A	UC 1 GPC 1,8,9 PC 1,6,12
3.	Match the classification variant of endocrine disorders and their examples. 1) Disturbance of the central regulation of the endocrine glands 2) Pathological processes in the gland 3) Peripheral mechanisms of the hormones activity disorder A) Formation of antibodies to some hormones B) Genetic defect of the hormones synthesis C) Lack of substrates for the hormone synthesis D) Disturbance of the hormone connection with the protein carrier E) Damage of the hypothalamus F) Injury of the limbical structures of the brain G) Disturbance of the receptor expression to hormones in the target cells	1) E, F 2) B, C 3) A, D, G, H	UC 1 GPC 1,8,9 PC 1,6,12
4.	Put into the correct order the sequence of changes leading to hyperpigmentation of skin and mucous membranes in the Addison's disease A) Increase in a synthesis and a secretion of the proopiomelanocortin by the hypophysis (the precursor of ACTH) B) Insufficiency of a cortisol production by the adrenal gland cortex C) Increased production of ACTH and melanocortin by the hypophysis D) Hyperproduction of melanin by the melanocytes E) Increase in the pigment accumulation in the skin and mucous membranes	B, A, C, D, E	UC 1 GPC 1,8,9 PC 1,6,12
5.	Match the variant of dyspnea and the most possible causes 1) Tachypnea 2) Bradypnea A) Hypoxia B) Decrease in the respiratory center excitability C) Hyperoxia D) Elevation of the respiratory center excitability E) Compensative acidosis F) Increased arterial pressure	1) A, D, E 2) B, C, F	UC 1 GPC 1,8,9 PC 1,6,12
6.	Match diuresis disorders and their definitions 1) polyuria	1-C, 2-D,	UC 1

	2) olyguria 3) anuria 4) hyposthenuria 5) isosthenuria A) monotonous diuresis with the urine density of 1.010 B) diuresis with the urine density of 1.012-1.006 C) increased day urine amount D) lowered day urine amount E) urine cessation (no urine flow)	3-E, 4-B, 5-A.	GPC 1,8,9 PC 1,6,12
7.	Match the variants of cholestasis and their causes. 1) Primary cholestasis 2) Secondary cholestasis A) Obturation of a common bile duct by a stone or by a tumor B) Condensation of bile in dehydratation C) Cholangitis D) An edema of a Fatter's papilla due to the duodenum inflammation E) Infectious hepatitis F) Toxic hepatitis	1) B, C, E, F 2) A, D	UC 1 GPC 1,8,9 PC 1,6,12
8.	Put into a correct order the sequences of changes leading to the development of cardiac edemas. 1. Stimulation of the aldosterone secretion. 2. Irritation of the baroreceptors. 3. Decrease in the cardiac output. 4. Increase in the sodium reabsorption by kidneys. 5. Increase in the water reabsorption by kidneys. 6. Increase in the ADH production. 7. Irritation of osmoreceptors. 8. Accumulation of water by tissues.	3-2-1-4-7-6-5-8.	UC 1 GPC 1,8,9 PC 1,6,12
9.	What is the sequence of changes leading to the development of nephrotic edemas? 1. Increase in the aldosterone and ADH production. 2. Increase in the sodium and water reabsorbtion by kidneys. 3. Increase in the water filtration from the vessels into the tissues. 4. Hypovolemia. 5. Hypoproteinemia. 6. Proteinuria. 7. Release of water from the vessels into the tissues and the development of edemas.	6-5-3-4-1-2-7	UC 1 GPC 1,8,9 PC 1,6,12
10.	Put into a correct order the sequences of changes leading to the normalization of the sodium concentration in blood in electrolytes disorders. 1. Increase in the ADH production. 2. Hypersodiumemia. 3. Increase in the sodium and water reabsorbtion by kidneys. 4. Normalization of sodium concentration in blood. 5. Increase in the plasma osmolality. 6. Irritation of the osmoreceptors. 7. Increase in the circulation blood volume.	2-5-6-1-3-7-4	UC 1 GPC 1,8,9 PC 1,6,12
11.	Match the type of body's resistanse and their manifestations. 1) Active resistance 2) Passive resistance A) Emigration of leukocytes and phagocytes B) Neutralization and elimination C) Hereditary immunity D) Acute-phase reactions E) Barrier functions of the skin and mucous membranes G) HCI content in the gastric juice H) Tachypnea and tachycardia in hypoxia	1) A, B, D, H 2) C, E, G	UC 1 GPC 1,8,9 PC 1,6,12
12.	Match the somatotypes and their signs 1) Hypersthenic type of the human constitution 2) Asthenic type of the human constitution A) Narrow chest B) Horizontal position of the heart C) Acute epigastric angle D) Dull epigastric angle E) Tendency to obesity	1). B, D, E 2) A, C, F	UC 1 GPC 1,8,9 PC 1,6,12

	F) Tendency to hypoglycemia		
13.	Match the somatotypes and their biochemical peculiarities 1) Hypersthenic type of the human constitution 2) Asthenic type of the human constitution A) basic metabolism is decreased B) content of sugar in blood is decreased C) content of cholesterol in blood is increased D) processes of dissimilation prevail	1) A, C 2) B, D	UC 1 GPC 1,8,9 PC 1,6,12
14.	Match the somatotypes and predisposition to the diseases. 1) Hypersthenic type of the human constitution 2) Asthenic type of the human constitution A) Gastric and duodenal disease B) Addison's disease C) Diabetes mellitus D) Hypertonic disease E) Abdominal hernia	1) C, D 2) A, B, E	UC 1 GPC 1,8,9 PC 1,6,12
15.	Chose the sentences to complete the definition of "resistance" Resistance is ____ ____ ____ ____. 1.Stability of cells, tissues, organs and the organism as a whole to resist to the action 2.Ability of organism to resist to the action a) of certain factors of the environment b) of pathogenic factors of the environment	1, b)	UC 1 GPC 1,8,9 PC 1,6,12

5. The content of the assessment tools of mid-term assessment

Mid-term assessment is carried out in the form of an **exam**.
The content of the assessment tool (questions.)

The bank of assessment tools for conducting current control and mid-term assessment of students in this discipline is presented on the Educational Portal of the PRM. A link to this electronic resource:

https://sdo.pimunn.net/course/view.php?id=2765

https://sdo.pimunn.net/course/view.php?id=2766

5.1 The list of control tasks and other materials necessary for the assessment of knowledge, skills and work experience *(the teacher indicates only those tasks and other materials that are used within the framework of this discipline)*

5.1.1. Questions for the discipline exam.

Question	Competence code (according to the WPD)
1. Health (norm) and disease. Characteristics of the diseases. Pathological process, pathological reaction, pathological state, typical (common) pathological process. 2. Stages and outcomes of a disease. 3. Etiology. Causes of diseases. 4. Pathogenesis (definition). Cause and effect relations. Conception of vicious circle. 5. Reactivity of the body: definition, kinds, mechanisms. Resistance: definition, kinds, mechanisms. Reactivity and resistance. 6. The role of heredity in pathology: hereditary and congenital diseases, genetic predispositions. Causes and kinds of mutations. Types of genetic diseases transduction. Molecular-genetic and chromosome diseases. 7. Stress-reaction (general adaptation syndrome). Adaptation diseases. 8. Shock. Definition, kinds, phases, pathogenesis. 9. Coma. Definition, classification, pathogenesis. 10. Etiology and pathogenesis of cell injury. 11. Mechanisms of cell injury compensation. Necrosis and apoptosis. 12. Arterial hyperemia. Causes, kinds, pathogenesis, external signs, consequences,	

significance. 13. Venous hyperemia. Causes, pathogenesis, manifestations, consequences, outcomes. 14. Ischemia. Causes, kinds, pathogenesis, signs, consequences, outcomes. Reperfusion. 15. Thrombosis as a cause of peripheral disorders of blood circulation. 16. Embolism as a cause of peripheral disorders of blood circulation. 17. Inflammation. Etiology. Pathogenesis of local signs of acute inflammation. 18. Mediators of inflammation. Kinds, mechanisms of action. 19. Disorders of blood circulation and microcirculation in the focus of inflammation. 20. Mechanisms of exudation. Kinds of exudates and their qualities. Comparison of exudation and transudation. 21. Mechanism of leukocytes emigration. Phagocytosis. Kinds, stages, significance. 22. Proliferation in inflammation. Effects of inflammation. Biological significance of inflammation. 23. Acute phase response. 24. Fever, definition. Kinds of fever. Pyrogens, kinds, the mechanism of action. Fever pathogenesis. 25. Allergy (hypersensitivity). Definition. Etiology. Kinds of allergens. Sensitization mechanisms. Classification of allergic reactions. 26. Allergy reactions type I. 27. Allergy reactions type II. 28. Allergy reactions type III. 29. Allergy reactions type IV. 30. Tumor growth (neoplasia). Definition. Tumor growth and other hyperbiotic processes. Benign and malignant tumors, comparative characteristics. 31. Etiology of neoplastic growth. Chemical, physical and biological carcinogens effects. 32. Mechanism of carcinogenesis (transformation, promotion, progression). Modern conceptions about mechanisms of transformation. 33. Absolute and relative insulin deficiency. Diabetes mellitus. 34. Disorders of acid-base balance. Acidosis. Alkalosis. 35. Causes, kinds, pathogenesis and results of hypo- and hyperhydration of the body. 36. Edema. Definition, kinds, causes, pathogenesis, significance. 37. Pathogenesis of cardiac edema. 38. Pathogenesis of renal edema. 39. Pathogenesis of edema in liver failure. 40. Hypoxia. Definition. Kinds of hypoxia. Gas content of the blood in different kinds of hypoxia. Compensation mechanisms, pathological changes in the body. 41. Changes of blood volume. Causes, kinds, pathogenesis. Acute and chronic blood loss (causes, pathogenesis, results). 42. Anemia. Definition. Principles of classification. Qualitative changes of erythrocytes in anemia. 43. Causes, pathogenesis, blood test changes in hemolytic anemia. 44. Causes, pathogenesis, blood test changes in anemia, caused by erythropoesis abnormalities. 45. Leukocytosis and leukopenia. Definitions, causes, kinds, mechanisms of development. Qualitative changes of leukocytes in peripheral blood. 46. Leukemia. Definition. Etiology. Kinds. Peripheral blood and changes in hemopoetic organs in leukemia. 47. Hemorrhagic syndrome. Causes, pathogenesis and results. 48. Blood circulation failure. Definition, kinds. Hemodynamic characteristics in vascular and cardiac failure. 49. Causes, kinds and pathogenesis of heart failure. 50. Ischemic heart disease, etiology, pathogenesis, manifestations. 51. Myocardial hypertrophy. Definition. Stages. 52. Compensation mechanisms in heart failure. 53. Hemodynamic and clinical manifestations of cardiac failure.	UC 1 GPC 1,8,9 PC 1,6,12

54. Modem conceptions about causes, kinds, and pathogenesis of symptomatic hypertension and hypertensive diseases. 55. Insufficiency of external respiration. Kinds. Gas composition of blood in external respiration insufficiency. 56. Influence of external respiration insufficiency on the organism. 57. Dyspnea: causes, kinds and pathogenesis. 58. Asphyxia and pneumothorax as causes of insufficiency of external respiration. 59. Causes of maldigestion. Compensation reactions of the digestive system. Modern conception about causes and pathogenesis of gastric and duodenal ulcers. 60. Causes and results of maldigestion in the small intestine. 61. Causes of hepatic failure. Changes in the body in liver pathology. Hepatic coma. Kinds, pathogenesis. 62. Disorders of bile formation and bile excretion. Jaundice. 63. Disorders of diuresis and urine compound in kidneys diseases. 64. Disorders of glomerular filtration and the function of renal tubules. 65. Acute renal failure: causes, pathogenesis, stages and outcomes. 66. Chronic renal failure: causes, pathogenesis, stages. Uremia. 67. General etiology and pathogenesis of endocrine disorders. Disorders of the central mechanisms of endocrine glands regulation. 68. Causes and pathogenesis of endocrine disorders connected with the abnormalities of endocrine glands proper. Disorders of feedback mechanism. 69. Peripheral mechanisms of the endocrine pathologies. 70. Disorders of the pituitary gland. 71. Disorders of the thyroid gland. 72. Disorders of the adrenal glands. 73. Etiology and pathogenesis of the nervous system disorders. 74. Pathology of the nervous system. Motor disorders. 75. Pathology of the nervous system. Sensor disorders. 76. Modern conceptions of pain mechanism. Kinds of pain. Effect of pain on the body.	

6. Criteria for evaluating learning outcomes

For the credit (example)

Learning outcomes	**Evaluation criteria**	
	Not passed	**Passed**
Completeness of knowledge	The level of knowledge is below the minimum requirements. There were bad mistakes.	The level of knowledge in the volume corresponding to the training program. Minor mistakes may be made
Availability of skills	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes.	Basic skills are demonstrated. Typical tasks have been solved, all tasks have been completed. Minor mistakes may be made.
Availability of skills (possession of experience)	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes.	Basic skills in solving standard tasks are demonstrated. Minor mistakes may be made.
Motivation (personal attitude)	Educational activity and motivation are poorly expressed, there is no willingness to solve the tasks qualitatively	Educational activity and motivation are manifested, readiness to perform assigned tasks is demonstrated.

Characteristics of competence formation*	The competence is not fully formed. The available knowledge and skills are not enough to solve practical (professional) tasks. Repeated training is required	The competence developed meets the requirements. The available knowledge, skills and motivation are generally sufficient to solve practical (professional) tasks.
The level of competence formation*	Low	Medium/High

***** - *not provided for postgraduate programs*

For the exam (example)

Learning outcomes	**Assessment of competence developed**			
	unsatisfactory	**satisfactory**	**good**	**excellent**
Completeness of knowledge	The level of knowledge is below the minimum requirements. There were bad mistakes	The minimum acceptable level of knowledge. A lot of light mistakes were made	The level of knowledge in the volume corresponding to the training program. A few light mistakes were made	The level of knowledge in the volume corresponding to the training program, without errors
Availability of skills	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes	Basic skills are demonstrated. Typical problems with light mistakes have been solved. All tasks have been completed, but not in full.	All basic skills are demonstrated. All the main tasks have been solved with light mistakes. All tasks have been completed, in full, but some of them with shortcomings	All the basic skills were demonstrated, all the main tasks were solved with some minor shortcomings, all the tasks were completed in full
Availability of skills (possession of experience)	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes	There is a minimal set of skills for solving standard tasks with some shortcomings	Basic skills in solving standard tasks with some shortcomings are demonstrated	Skills in solving non-standard tasks without mistakes and shortcomings are demonstrated
Characteristics of competence formation*	The competence is not fully formed. The available knowledge and skills are not enough to solve professional tasks. Repeated training is required	The formation of competence meets the minimum requirements. The available knowledge and abilities are generally sufficient to solve professional tasks, but additional	The formation of competence generally meets the requirements, but there are shortcomings. The available knowledge, skills and motivation are generally sufficient to	The formation of competence fully meets the requirements. The available knowledge, skills and motivation are fully sufficient to solve complex professional tasks

Learning outcomes	Assessment of competence developed			
	unsatisfactory	**satisfactory**	**good**	**excellent**
		practice is required for most practical tasks	solve professional tasks, but additional practice is required for some professional tasks	
The level of competence formation*	Low	Below average	Intermediate	High

For testing:

Mark "5" (Excellent) - points (100-90%)
Mark "4" (Good) - points (89-80%)
Mark "3" (Satisfactory) - points (79-70%)

Less than 70% – Unsatisfactory – Mark "2"

Developer(s):
Full name, position, academic degree, academic title